

MIL-H-24135A(SH)
18 July 1986
SUPERSEDING
MIL-H-24135(SHIPS)
12 March 1965
(See 6.7)

MILITARY SPECIFICATION

HOSE, SYNTHETIC RUBBER, WIRE REINFORCED, AND END FITTINGS, REUSABLE, FOR FLEXIBLE HOSE ASSEMBLIES, GENERAL SPECIFICATION FOR

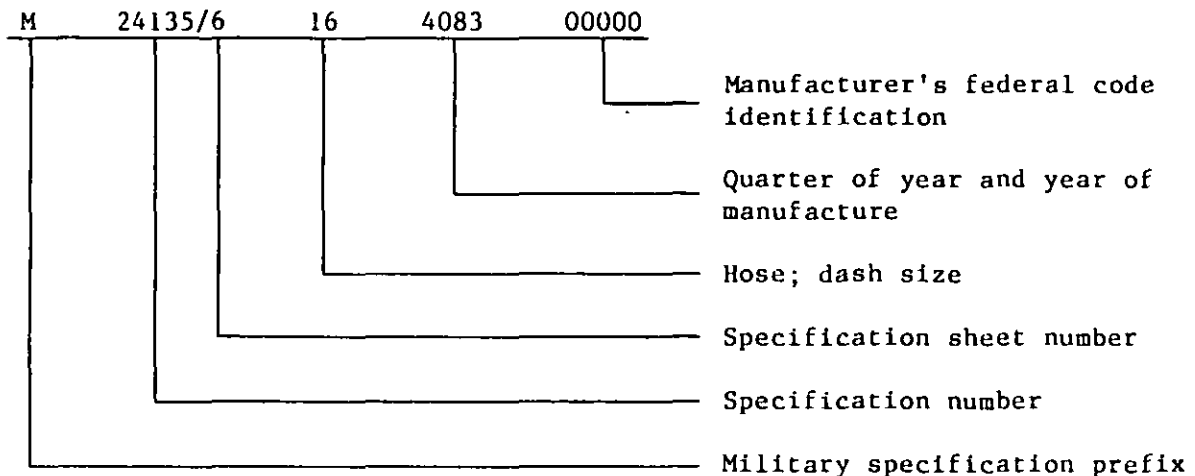
This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for hose, hose assemblies, and reusable end fittings.

1.2 Classification. Hose and end fittings shall be of the types and sizes specified in the individual specification sheets.

Hose. The layline shall contain, but not be limited to the following:



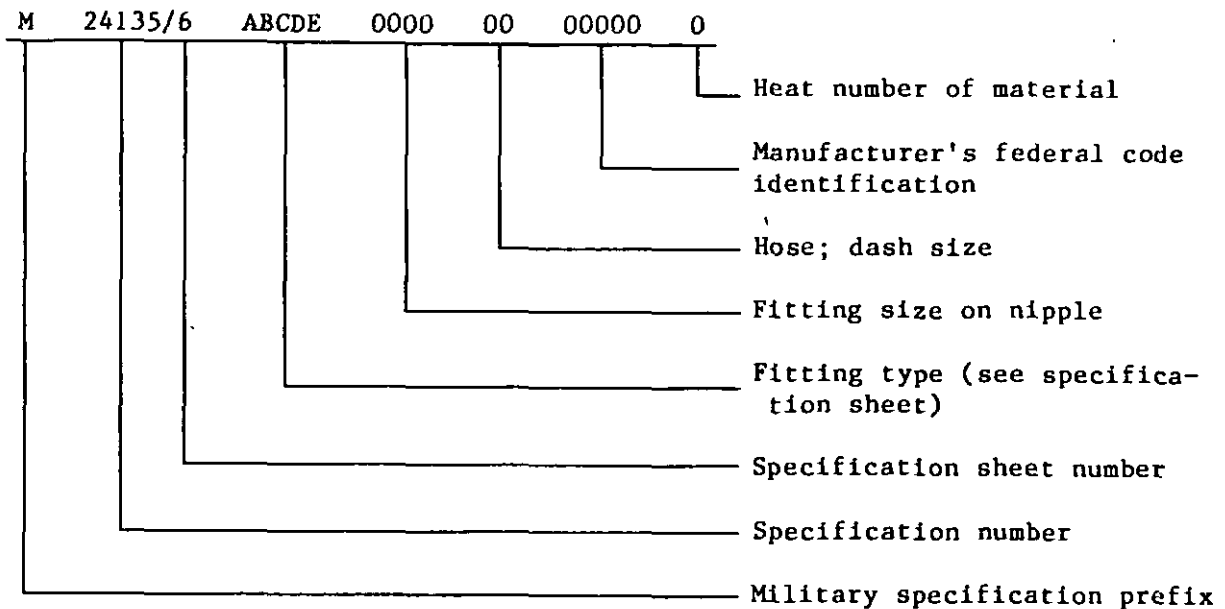
Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4720

DISTRIBUTION STATEMENT A Approved for public release; distribution unlimited

End fittings. The identification shall contain the following:



2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specification and standards. The following specification and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

MILITARY

MIL-P-775 - Packaging of Hose Assemblies; Rubber, Plastic, Fabric, or Metal (Including Tubing); and Fittings, Nozzles, and Strainers.

STANDARDS

FEDERAL

FED-STD-H28 - Screw-Thread Standards for Federal Services.
FED-STD-162 - Hose, Rubber, Visual Inspection Guide for.

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-177 - Rubber Products, Terms for Visible Defects of.
MIL-STD-278 - Fabrication Welding and Inspection; and Casting Inspection and Repair for Machinery, Piping and Pressure Vessels in Ships of the United States Navy.

(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 380 - Standard Methods of Testing Rubber Hose. (DoD adopted)
- D 413 - Standard Test Methods for Rubber Property-Adhesion to Flexible Substrate. (DoD adopted)
- D 1141 - Standard Specification for Substitute Ocean Water. (DoD adopted)

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Qualification. The hose and end fittings furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time set for opening of bids (see 4.3 and 6.3).

3.2 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.3 Material. Materials shall conform to the following requirements.

3.3.1 Hose. Hose shall consist of a synthetic rubber tube, reinforcement, and a synthetic rubber cover.

3.3.1.1 Rubber. The rubber compounds shall be as specified on the individual specification sheets.

3.3.1.2 Reinforcement. Wire used for wire-braid or spiral-wrap reinforcement shall be high-strength carbon steel.

3.3.1.3 Frictioned fabric layer. The frictioned fabric layer, if used, between the tube and reinforcement shall be a cotton or synthetic fibre of good quality, or a combination of both.

3.3.2 Fittings. Fittings shall be of material as specified on the applicable specification sheet.

3.3.3 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and may be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified.

3.4 General assembly requirements.

3.4.1 Hose. The hose shall consist of a seamless or wrapped synthetic rubber tube, wire-braid or spiral-wrap reinforcement of high-strength carbon steel, and a synthetic rubber cover as specified on the applicable specification sheet. The hose shall be constructed to meet the requirements of this specification and to retain qualified end fittings without slippage or leakage when tested as specified herein.

3.4.2 Tube. Tube shall be fabricated from synthetic rubber as specified on the applicable specification sheet and shall have a smooth bore, be free from pitting, cuts, dirt, foreign material, mandrel lubricants or other defects that would affect the performance of the hose.

3.4.3 Reinforcement. The reinforcement shall consist of high-strength carbon steel wire-braid or spiral-wrap as specified on the applicable specification sheet. A frictioned fabric layer may be applied over the reinforcement.

3.4.4 Cover. Cover shall be made of synthetic rubber as specified in the applicable specification sheet compounded to give maximum resistance to oxidation, weathering, abrasion, and light aging, and to meet the requirements of this specification.

3.4.4.1 Cover color. The cover of hoses for petroleum-based oils shall be black, and covers for phosphate ester oils shall be green (see 6.1 of appropriate specification sheet).

3.4.5 Concentricity. Concentricity, based upon full indicator reading between the inside bore of the hose and the outside surface of both the hose and the reinforcement, shall not exceed the following values:

<u>Size</u>	<u>Id to od (hose)</u>	<u>Id to od (reinforcement)</u>
To -4	0.030	0.021
Over -4 to -12	.040	.028
Over -12 to -32	.050	.038
Over -32	.062	.045

3.4.6 Dimensions and pressures. Hose dimensions and pressures shall be in accordance with the applicable specification sheet.

3.4.7 Temperature range. Hose shall comply with specified requirements through a temperature range of minus 40 to 200 degrees Fahrenheit (°F) for all applications.

3.4.8 Lengths. Unless otherwise specified (see 6.2.1), hoses less than size -20 shall be furnished in the following lengths: a minimum of 65 percent in lengths of 45 feet or longer and a maximum of 10 percent in lengths from 3 to 24 feet. Unless otherwise specified (see 6.2.1), hoses of size -20 and larger shall be furnished 85 percent in straight lengths of 12 feet or longer and the remainder in lengths not less than 6 feet. The hose lengths shall be the actual length measured along the cover.

3.4.9 End fittings. End fittings shall be the types and sizes specified on figures to the applicable specification sheet and shall be of the reuseable design. Hose end of the fitting may be of a solid socket, ring retained segmented socket, or bolt retained segmented socket or any other design capable of meeting all the requirements of this specification. Hose end of the fitting shall be readily removable and reattachable to a new section of hose by the use of commonly available tools which are normally carried aboard ship. The need for special tools shall be subject to the review and approval of the Naval Sea Systems Command (NAVSEA).

3.4.10 Weights and dimensions (fittings). Weight of the end fitting shall be kept to a minimum and the dimensions of the fitting shall not exceed the envelope limits shown on figures to the applicable specification sheet.

3.4.11 Finish. Fittings shall be finished smooth and free from nicks, scratches, burrs, and sharp edges.

3.4.12 Tool and die marks (nickel copper alloy barstock only). The presence of tool marks on machined parts is acceptable provided such marks do not exceed 3 percent of the wall thickness or reduce the wall thickness to an unacceptable level. Draw marks upon the external hexagonal surfaces, such as the outside diameter (od) of solid sockets, which are normally unmachined surfaces, are acceptable if they do not exceed 3 percent of the wall thickness.

3.4.13 Welding. Welding, if used, shall be in accordance with MIL-STD-278. Brazing of fitting parts shall not be permitted. If welding is used in the fabrication of any of the types of fittings covered by this specification, welding procedures used by the contractor for the materials specified herein shall be approved by NAVSEA prior to the start of qualification testing.

3.4.13.1 Weld repair. Weld repair shall be in accordance with MIL-STD-278.

3.4.14 Mating. Where two parts of the same material are mated together, provision shall be made to prevent galling and seizing of the mated surfaces. A solid film lubricant, such as molybdenum disulfide, or two classes of treatments of the same material, or a combination of any of these methods, may be used to prevent galling and seizing.

3.5 Physical requirements.

3.5.1 Proof pressure. Hoses shall show no evidence of leakage, rupture, or deformation when subjected to the proof pressure test specified in 4.6.1.

3.5.2 Stability (dimensional change). When tested in accordance with 4.6.2, hoses shall not change in length more than plus 2 percent or minus 4 percent.

3.5.3 Aging. The hose assembly shall show no evidence of aging, such as cracking, separation of plies, or a deformation in the form of bulging or collapsing when subjected to tests specified in 4.6.3.

3.5.4 Hydraulic fluid circulation. There shall be no evidence of leakage through the hose or hose fitting when subjected to the hydraulic fluid test specified in 4.6.4.

3.5.5 Hydraulic impulse. Hose shall show no evidence of failure or leakage when subjected to the test specified in 4.6.5.

3.5.6 Burst pressure. Hoses shall show no indication of failure or leakage at less than the specified burst pressure when subjected to the burst test specified in 4.6.6.

3.5.7 Vacuum. There shall be no evidence of ply separation or other degradation of the hose when vacuum tested as specified in 4.6.7.

3.5.7.1 Internal support devices. When required, internal support devices shall be fitted to the hose to prevent collapse under vacuum service. Support devices of the coil type shall be of a flat wound spring wire strip.

3.5.8 Cold temperature flexibility. Hose shall show no evidence of cracking or failure when subjected to the test specified in 4.6.8.

3.5.9 Adhesion between plies. The adhesion between the tube, cover, and reinforcement shall be not less than 15 pounds per square inch (lb/in²) when tested as specified in 4.6.9.

3.6 Identification marking.

3.6.1 Hose. Hose shall have a permanent and visible embossed or inlaid layline along its entire length. The numerals and lettering shall be not less than 1/16-inch high, and each set of markings shall be repeated at intervals not exceeding 20 inches.

3.6.2 End fittings. Each end fitting part shall have permanent and visible stamped or embossed identification. The numerals and lettering shall be as large as possible, but not less than 1/8-inch high (see figure 1).

3.6.3 Instructions. Instructions for installing the fittings onto the hose shall be packed with each fitting and shall contain, but not be limited to, the following:

- (a) Steps and lists of tools required to properly attach the fitting to the hose. Instructions shall be complete, clear and concise.
- (b) Maintenance or assembly precautions required.

The instruction tag shall be a permanent type that will not become illegible or be damaged during packaging or storage.

3.7 Threads. Where screw threads are required, they shall be in accordance with FED-STD-H28.

3.8 Age of manufacture. Hose shall be manufactured not more than 8 calendar quarters (2 years) prior to date of delivery.

3.9 Workmanship. Hoses and fittings shall be uniform in quality and in material. Castings shall be free from patching, misalignment resulting from shifted coring, warping, porosity or other defects. Sprues shall be removed, and the castings shall be free from sand, dirt, scale, and other extraneous materials. Forgings shall be free from patching, warping or other defects and free from dirt, scale, and other extraneous materials. Machined parts shall be manufactured to tolerances and dimensions specified herein. Hoses and fittings shall be free from workmanship deficiencies that could impair the function or serviceability of the hose and fitting in its intended use.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Inspection system. The contractor shall provide and maintain an inspection system acceptable to the Government for supplies and services covered by this specification. The inspection system shall be in accordance with the contract or order (see 6.2.1).

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- (a) Qualification inspection (see 4.3).
- (b) Quality conformance inspection (see 4.4).

4.3 Qualification inspection. Qualification inspection shall be conducted at a laboratory satisfactory to NAVSEA. Qualification inspection shall consist of the examination of 4.5 and the tests of 4.6.1 through 4.6.9. Required hose assemblies and sequence of tests shall be as specified on the applicable specification sheet. If end fittings only are being qualified, the stability test (see 4.6.2), aging (see 4.6.3), and cold temperature flexibility test (see 4.6.8) need not be conducted.

4.3.1 Qualification samples. Samples of hose, end fittings, or hose assemblies and the sequence of tests shall be in accordance with the applicable specification sheet.

4.3.2 Fitting types required. If the hose end of the fitting is identical for more than one type of fitting, only a representative type of fitting will require qualification testing. Qualification may be granted to all those types which the representative sample represents, subject to the results of the tests.

4.4 Quality conformance inspection. Quality conformance inspection shall consist of the examination of 4.5 and tests specified in 4.6.1, 4.6.2, and 4.6.6.

4.4.1 Lots.

4.4.1.1 Hose. A lot shall consist of hose of the same size and type offered at one time for purposes of quality conformance inspection. At the discretion of the contractor and the Government inspector, hose in excess of contractual requirements may be offered for quality conformance inspection provided the hose is identified with a lot number in the layline in addition to other identification requirements.

4.4.1.2 Fittings. A lot shall consist of fittings of the same type and size offered at one time for the purpose of quality conformance inspection.

4.4.1.3 Hose assemblies. A lot shall consist of all hose assemblies made of the same type and size hose offered at one time for purposes of quality conformance inspection.

4.4.2 Sampling for visual and dimensional examination.

4.4.2.1 Hose. A random sample of hose shall be selected from each lot (see 4.4.1.1) in accordance with MIL-STD-105 for normal level of examination using a major defective acceptable quality level (AQL) value of 1.0 percent and a 2.5 percent defective for minor defects. Examination shall be in accordance with 4.5 and table I.

4.4.2.2 Fittings. A random sample of fittings shall be selected from each lot (see 4.4.1.2) in accordance with MIL-STD-105 for normal level of examination using a major defective AQL value of 1.0 percent and a 2.5 percent defective for minor defects. Examination shall be in accordance with 4.5 and table I.

TABLE I. Classification of defects.

Category	Defects
Critical	
1	Hose does not conform to dimensions and tolerances specified
2	Reinforcement not as specified
3	Hose size not as specified
4	Length not as specified
5	Marking missing or not as specified
6	Missing wire braid ply
7	Crack or hole in tube
8	Fittings or hose assemblies not as specified
Major	
101	Tube not as specified
102	Missing or broken ply wire
103	Color not as specified
Minor	
201	Depressed area of hose (exceeds od minimum tolerance)
202	Depressed area of hose tube (exceeds id maximum tolerance)
203	Presence of foreign material

4.4.3 Sampling for tests.

4.4.3.1 Hose. A random sample of hose, in 18-inch lengths, shall be selected from each lot in accordance with MIL-STD-105 and subjected to the length change and burst tests specified in 4.6.2 and 4.6.6. The inspection level shall be normal and the AQL of 1.5 percent.

4.4.3.2 Fittings. A random sample of fittings shall be selected from each lot in accordance with MIL-STD-105 and subjected to the burst test of 4.6.6. The inspection level shall be normal and the AQL 1.5 percent. In performing these tests, the fittings shall be fitted onto hose lengths (not less than 15 inches in length) which have been previously qualified.

4.4.3.3 Hose assemblies. Hose assemblies shall be fabricated from hose and fittings which have been previously examined in accordance with 4.4.2.1 and 4.4.2.2 and tested as specified in 4.4.3.1 and 4.4.3.2. Hose assemblies shall be examined dimensionally to the requirements of the contract and proof-tested as specified in 4.6.1.

4.5 Examination.

4.5.1 Hose. Each of the hose samples selected in accordance with 4.4.2.1 shall be visually and dimensionally examined to determine conformance with the applicable specification sheet and any other requirements of this specification not involving tests. Sample hose containing one or more visual or dimensional defects shall be rejected and if the number of defective hose samples exceeds the acceptance number for that sample, the lot represented by the sample shall be rejected. Evaluation of defects shall be in accordance with FED-STD-162. Forms for visible defects shall be as defined in MIL-STD-177.

4.5.2 End fittings. Each sample fitting selected in accordance with 4.4.3.2 shall be visually and dimensionally examined to determine conformance with 3.4.9. Any sample fitting containing one or more visual or dimensional defects shall be rejected and, if the number of defective fittings exceed the acceptance number for that sample, the lot represented by the sampling shall be rejected.

4.6 Tests.

4.6.1 Proof pressure. The proof pressure test of the hose shall be conducted with samples in accordance with 4.3.1 and 4.4.1. The pressure shall be increased at a rate not less than 15,000 lb/in² per minute nor more than 25,000 lb/in² per minute. The proof pressure shall be 200 percent of the maximum working pressure specified in the applicable specification sheet, and shall be held for not less than 1 minute nor more than 5 minutes. Evidence of leakage, rupture, or deformation of the hose shall constitute failure of this test.

4.6.2 Stability (dimensional change). After successful completion of the proof test, the hose samples shall be measured as specified in ASTM D 380 except that they shall be marked at least 1/2 inch from each end fitting and the distance measured between the marks. The maximum working pressure specified in the applicable specification sheet shall then be applied and the distance between the marks measured at that pressure. Nonconformance to 3.5.2 shall constitute failure of this test.

4.6.3 Aging of samples. Where required, the assembly shall be completely filled and pressurized to working pressure with the hydraulic fluid, as specified on the applicable detail specification, and held at this pressure while immersed in a nonpressurized, closed-type container or a reflux-type condenser to prevent distillation of the volatile matter in the fluid. Each assembly shall be aged by soaking in the fluid specified on the applicable specification sheet. Each assembly shall be aged by being subjected to a temperature not less than 158°F nor greater than 160°F first in air, then immersed in synthetic sea water conforming to ASTM D 1141, for the times specified below:

- (a) 76 hours plus or minus 1/4 hour in air.
- (b) 46 hours plus or minus 1/4 hour in synthetic sea water.

Provisions shall be made to bleed off the excess pressure caused by thermal expansion of the pressurized fluid. Nonconformance to 3.5.3 shall constitute failure of this test.

4.6.4 Hydraulic fluid circulation. Sample hose assemblies shall be filled with hydraulic fluid as specified on the applicable specification sheet. Sample hose assemblies shall then be pressurized from 75 to 100 lb/in². The fluid temperature shall be raised from ambient temperature to $180 \pm 10^{\circ}\text{F}$ and the fluid circulated through the hose assembly at a flow rate of not less than 3 gallons per minute. The ambient temperature shall be maintained at $75 \pm 15^{\circ}\text{F}$. Every 24 hours the pressure shall be increased to maximum working pressure listed in the applicable specification sheet and maintained for not less than 5 minutes. The flow shall be continued for not less than 200 hours. At the completion of this test, the hose assembly shall be pressurized to maximum working pressure specified in the applicable specification sheet, with the pressure held for not less than 5 minutes. Nonconformance to 3.5.4 shall constitute failure of this test.

4.6.5 Impulse. Hose assemblies shall be subjected to impulse testing to the peak pressure specified on the applicable specification sheet. Hose assemblies shall be subjected to impulse rate from 30 to 80 cycles per minute, with the hydraulic fluid at a temperature of not less than 120°F nor greater than 130°F for a total of 150,000 cycles. Hose assemblies in sizes -4 through -12 shall be bent through 180 degrees to the minimum bend radius specified in the applicable specification sheet during the impulse test, with both ends rigidly supported. Hose assemblies larger than size -12 shall be dynamically impulsed straight with one end capped and free from support. At the beginning of each pressure cycle, the peak pressure specified on the applicable specification sheet shall be attained. The applicable working (service) pressure shall be attained before leveling off (see figures 2 and 3) as applicable.

4.6.5.1 Retest and averaging impulse. In the event of a hose failure during impulse testing, an additional hose assembly may be tested and the results of all assemblies of the same size tested shall be averaged. The conditions for testing an additional hose assembly shall be as follows:

- (a) The failed hose shall have reached not less than 95 percent of the required number of impulse cycles.
- (b) For the purpose of averaging the number of cycles, the maximum number of cycles that can be used from any single tested hose assembly is 110 percent of the required number of cycles, or the actual number of cycles at the time of failure if failure occurs between 100 and 110 percent of the required number of cycles.

Nonconformance to 3.5.5 shall constitute failure of this test.

4.6.6 Burst. Sample hose assemblies shall be subjected to increasing internal cold hydraulic pressure at a rate not less than 15,000 lb/in² per minute, nor more than 25,000 lb/in² per minute until failure occurs. The pressure at which failure occurs shall be recorded. Hose assemblies utilized during this test are not acceptable for use. Nonconformance to 3.5.6 shall constitute failure of this test.

4.6.7 Vacuum. The hose shall be additionally tested under a vacuum not less than 29 inches of mercury for not less than 30 seconds. Nonconformance to 3.5.7 shall constitute failure of this test. If the size hose dictates support, internal support must be used during the vacuum test.

4.6.8 Cold temperature flexibility. The sample hose assemblies shall be cold-temperature-flexibility tested while filled with fluid as specified in the applicable specification sheet and enclosed in an environmental chamber of minus 40 + 2°F for not less than 24 hours. At the end of this period and while at this temperature, the hose assemblies sizes -4 to -16 shall be flexed through not less than 180 degrees, to the minimum bend radius specified in the applicable specification sheet within 12 seconds. For sizes -16 and larger, the flexing shall be through not less than 90 degrees to the minimum bend radius specified in the applicable specification sheet within 12 seconds. Nonconformance to 3.5.8 shall constitute failure of this test.

4.6.9 Adhesion. Adhesion of the tube and cover to the reinforcement, and of plies of reinforcement to each other, shall be determined in accordance with ASTM D 413 except that the required minimum weight shall be supported by the test specimen for 3 minutes without causing a separation of more than 1 inch. Three specimens of each interface shall be tested. Nonconformance with 3.5.9 shall constitute failure of this test.

4.7 Inspection of packaging. Sample packages and packs, and the inspection of the preservation-packaging, packing and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition. For the extent of applicability of the packaging requirements of referenced documents listed in section 2, see 6.5.)

5.1 Packaging, packing and marking. Hose, hose assemblies, and end fittings shall be packaged level A or C, packed level A, B, or C as specified (see 6.2.1.1 and 6.2.1.2) and marked in accordance with MIL-P-775.

5.2 Talc/talcum. Talc/talcum used in the packaging process of items shall be free of asbestos and asbestiform-like materials.

6. NOTES

6.1 Intended use. Hoses and end fittings are intended for use in piping systems as flexible connections to resiliently mounted (sound mounted) equipment but may be used for other applications which do not exceed the pressure rating of the hose selected.

6.2 Ordering data.6.2.1 Acquisition requirements.

6.2.1.1 Bulk hose and end fittings. For bulk hose and end fittings, acquisition documents should specify the following:

- (a) Title, number, and date of this specification and applicable specification sheet.
- (b) Hose type and size (see 1.2).
- (c) Type of end fitting (see 1.2).
- (d) Length of hose required (see 3.4.8).
- (e) End fitting size (pipe end and hose end) (see 3.4.9).
- (f) Inspection system required (see 4.1.2).
- (g) Level of packaging and packing (see 5.1).
- (h) Total quantity for each size.

6.2.1.2 Hose assemblies. For hose assemblies, acquisition documents should specify the following:

- (a) Title, number, and date of this specification and applicable specification sheet.
- (b) Type of end fitting (see 1.2).
- (c) Hose type and size (see 1.2).
- (d) End fitting size (pipe end and hose end) (see 3.4.9).
- (e) Inspection system required (see 4.1.2).
- (f) Type of configuration.
- (g) Length of free length of hose legs.
- (h) Level of packaging and packing (see 5.1).
- (i) Vacuum application.
- (j) Internal support when hose assembly is in vacuum service.

6.3 With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in Qualified Products List QPL-24135 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 and information pertaining to qualification of products may be obtained from that activity. Application for qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.3.1).

6.3.1 Copies of "Provisions Governing Qualification SD-6" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

6.4 Supersession data. Part of this specification supersedes that portion of MIL-H-24135 for class I, II, III, and IV hose and fittings. Table II provides the appropriate cross reference.

TABLE II. Supersession cross reference.

Detail specification	Old specification
MIL-H-24135/1	MIL-H-24135, class I
MIL-H-24135/2	MIL-H-24135, class II
MIL-H-24135/3	MIL-H-24135, class III
MIL-H-24135/2	MIL-H-24135, class IV

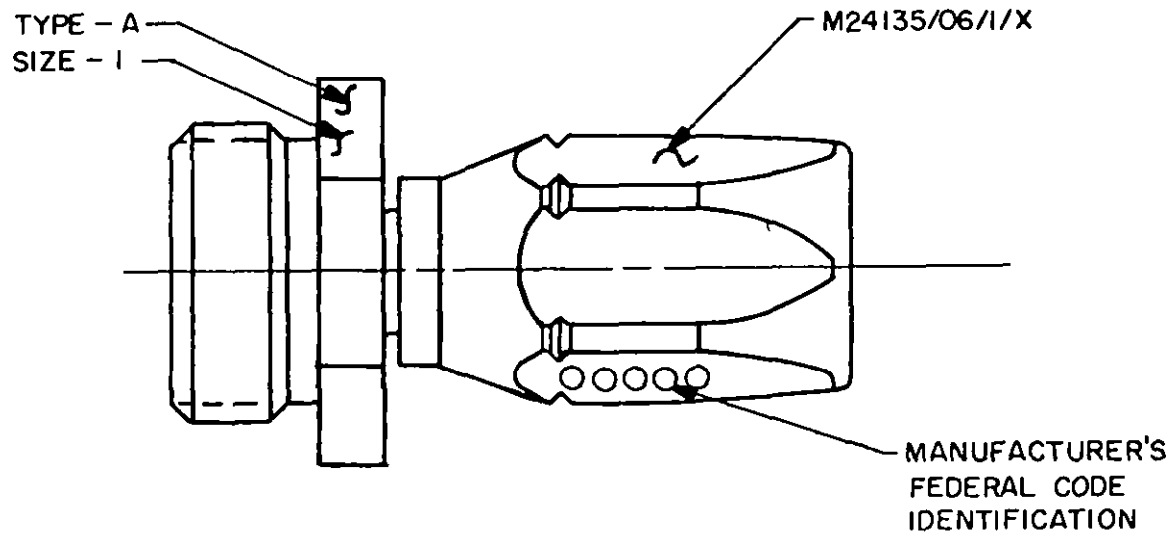
6.5 Sub-contracted material and parts. The packaging requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.6 Subject term (key word) listing.

Frictioned fabric layer
Reinforcement, spiral-wrap
Reinforcement, wire-braid
Synthetic rubber tube

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 4720-N530)

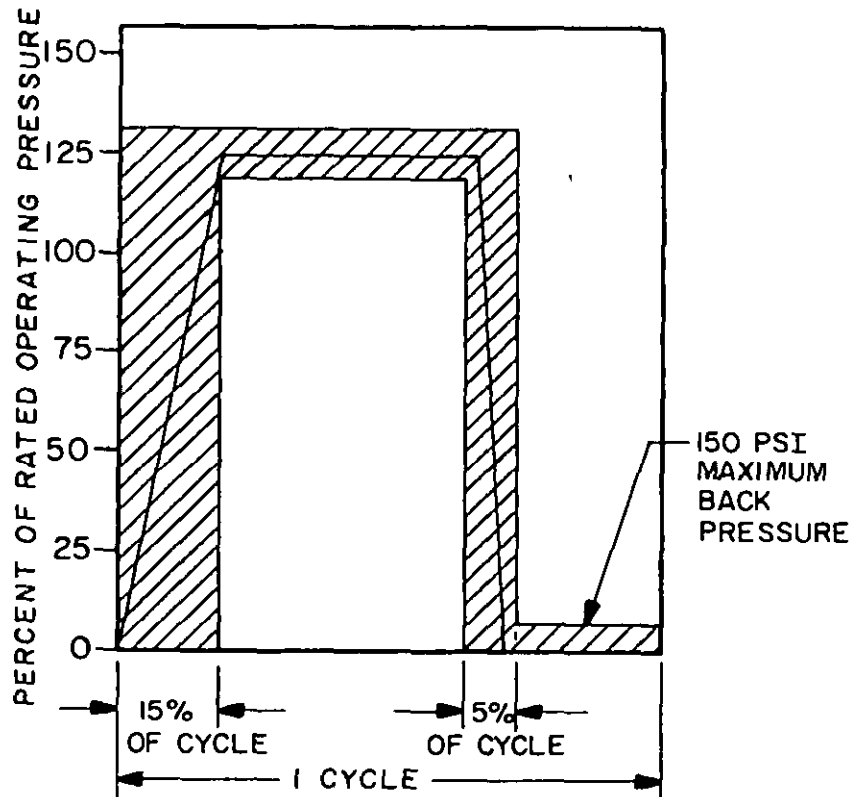


SH 1320201

NOTE:

1. More than one flat may be used to provide adequate space for the required identification.

FIGURE 1. Identification marking example (see 3.6.2).



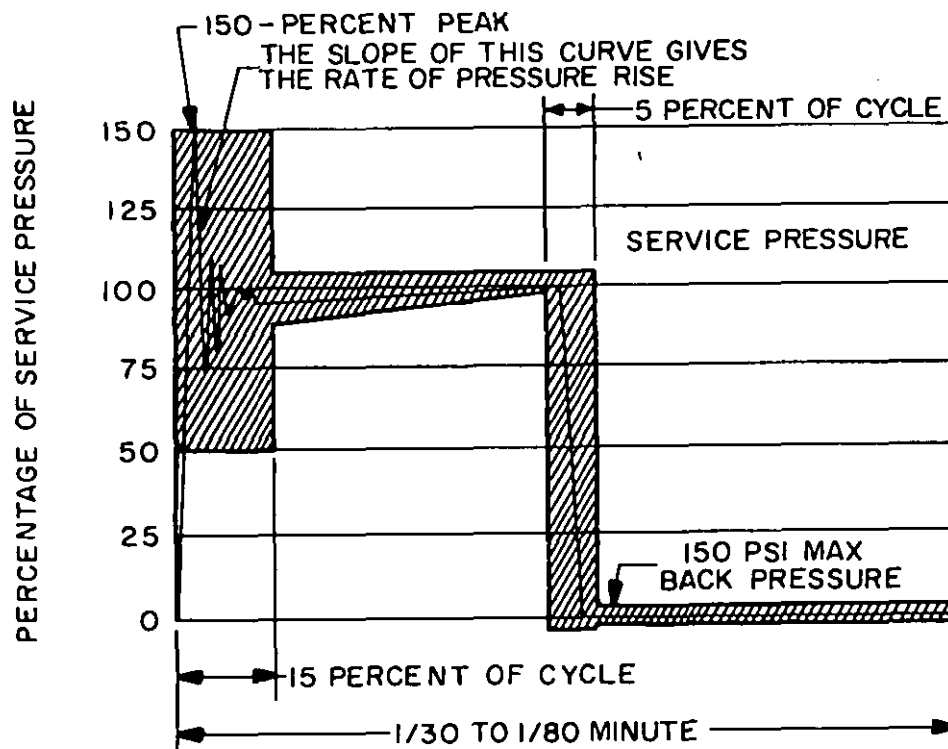
SH 1320202

For hose sizes larger than -32 (2 inches)

NOTE:

The curve is the approximate pressure time cycle for the pressure impulse to be used in performing the impulse test specified in 4.6.5. The actual pressure time cycle obtained when performing this test should fall within the shaded area.

FIGURE 2. Pressure time curve for impulse test.



SH 1320203

For sizes -4 to -32

NOTE:

The curve shown on the figure is the approximate pressure time cycle for the pressure impulses to be used in performing the hydraulic impulse test specified in 4.6.5. The actual pressure time cycle obtained when performing this test should fall within the shaded area.

FIGURE 3. Pressure time curve for hydraulic impulse test.

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE NAVY

COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 5523)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 12503 WASHINGTON D. C.

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE NAVY

COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 5523)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-H-24135A(SH)		2. DOCUMENT TITLE Hose, Synthetic Rubber, Wire Reinforced, And End Fittings, Reusable, For Flexible Hose Assemblies	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	